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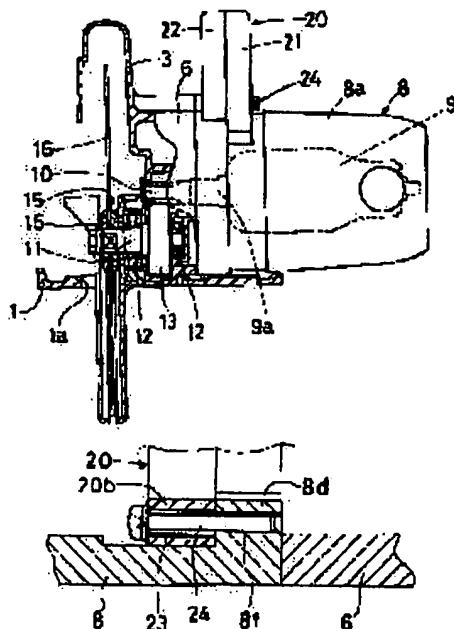
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(71)Applicant : MAKITA CORP  
(72)Inventor : NOMURA NOBUMASA  
OKOCHI KATSUMI

## (54) PORTABLE CIRCULAR SAW

### (57)Abstract:

**PURPOSE:** To alter a direction of a handle of a portable circular saw so as to conform with operating conditions.  
**CONSTITUTION:** A handle 20 is clamped releasably by a handle fixing screw 24 at a motor housing 8 containing a motor 9 therein. A regulating hole 23 is opened in a circular state through a mounting part 20b of the screw 24 with an axial center of a motor shaft 9a of the motor 9 as a center to allow the handle 20 to rotatably displace around the shaft 9a.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The portable circular saw which is the circular saw equipped with motor housing with which the motor which carries out the rotation drive of the serrated knife was contained inside, the blade case combined with this motor housing where said serrated knife is covered, and the handle in which the switch which starts said motor and is stopped was attached, and is characterized by to fix to said motor housing possible [ the rotation displacement around the motor shaft of said motor of said handle ].

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Industrial Application] This invention relates to the portable circular saw applied to cutting of wood, slot end processing, etc.

#### [0002]

[Description of the Prior Art] There are JP,46-7156,B, JP,59-167202,A, etc. as a Prior art. The body case which the circular saw which has the device in which make JP,46-7156,B rotate a serrated knife with a safety guard, and cutting depth is adjusted was indicated, and equipped JP,59-167202,A with the serrated knife to the base and Toride is connected enabling free rotation, and the circular saw to which it was made for Toride not to move with a body case is indicated on the occasion of adjustment of the slitting depth.

#### [0003]

[Problem(s) to be Solved by the Invention] Since the sense of a handle cannot be doubled with working conditions, such as an activity location (height), an operator's posture, and height, in the conventional above-mentioned circular saw by which the handle was fixed to the orientation and an operator's user-friendliness cannot change into the good sense, there is a trouble that the user-friendliness of a handle worsens depending on a working condition, and how to grasp a handle becomes unnatural. For example, since it is necessary to work after the wrist t of the hand which grasped Handle h has bent to install a circular saw m in a low location and cut the work piece w above the floor level with the low posture of a squat, as shown in drawing 9, workability gets very bad, accurate cutting becomes difficult, and there is a trouble of being fully hard to apply the force of \*\*\*\*(ing) a circular saw m in the cutting direction to Handle h. The technical problem of this invention is offering the portable circular saw which can double the sense of a handle with a working condition and can be changed into the user-friendly sense.

#### [0004]

[Means for Solving the Problem] This invention is the circular saw equipped with motor housing with which the motor which carries out the rotation drive of the serrated knife was contained inside, the blade case combined with this motor housing where said serrated knife is covered, and the handle in which the switch which starts said motor and is stopped was attached, and has the configuration which fixed to said motor housing possible [ the rotation displacement around the motor shaft of said motor of said handle ].

#### [0005]

[Function] The rotation variation rate of the handle fixed to motor housing with which the motor was contained is carried out to the surroundings of the motor shaft of said motor, the sense of a handle is adjusted according to a working condition, and it fixes to motor housing.

#### [0006]

[Effect of the Invention] Since this invention is constituted as described above, the rotation variation rate of the handle can be carried out according to working conditions, such as an activity location and an operator's posture, and an operator's user-friendliness can carry out turning of the sense of a handle to the best sense. therefore, the force of \*\*\*\*(ing) a portable circular saw in the cutting direction even if it can work by making into an always natural gestalt the gestalt of the hand which

grasps a handle and working conditions differ — a handle — receiving — always — effective — adding — cutting — exact-izing — and it can streamline.

[0007]

[Example] Next, the 1st example of this invention is explained according to drawing 1 - drawing 5. In the portable circular saw M, while long hole-like cutting edge 1a is established in the almost rectangular plate-like base 1, the front end section of the blade case 3 supported possible [ tilting to the vertical direction ] by the pivot 4 installed on this front end section is connected with the front end section of the base 1.

[0008] While the grip 5 by which horizontal appearance was carried out to the side is attached near the front end section of the blade case 3, the cylinder-like gear housing 6 is combined with the heel of the blade case 3 in the shape of matching.

[0009] The motor housing 8 which has in a way cylinder-like drum section 8a and cover-plate it was connected [ cover plate / outer edge / of this drum section 8a ] 8b outside the gear housing 6 is installed in the shape of matching with concentric.

[0010] Bottom protruding piece of one pair 8c protrudes on the inner edge lower part of drum section 8a of the motor housing 8 approximately, and \*\*\*\* 7 which concludes the motor housing 8 in the gear housing 6 is \*\*\*\*(ed) by this both Shimo protruding piece 8c, respectively.

[0011] 8d of one pair of upper protruding pieces protrudes on the inner edge upper part of drum section 8a of the motor housing 8 approximately, and through hole 8e and 8f of \*\*\*\* holes arranged on the radii which set the core of the motor housing 8 as a radii core are formed in 8d of upper protruding pieces of order.

[0012] The motor 9 which has motor shaft 9a concentrically installed with this motor housing 8 in the motor housing 8 is contained in the shape of sideways, and the pinion 10 is formed in motor shaft 9a.

[0013] Under the motor shaft 9a of a motor 9, the serrated knife shaft 11 supported by one pair of bearings 12 pivotable is installed in parallel with motor shaft 9a, and the transmission gear 13 which geared with the pinion 10 is being fixed near the end face of this serrated knife shaft 11.

[0014] Where an upper half is mostly covered with the blade case 3 for the disc-like serrated knife 16 through the \*\*\*\* member 15 of one pair of inside and outside concluded at this tip, it is fixed at the tip of the serrated knife shaft 11 possible [ \*\*\*\* ].

[0015] Guide hole 17a of the shape of a long hole which curved in the shape of radii considering the pivot 4 as a core is installed on the posterior part of the base 1 by the holddown member 17 set up with the front going-up posture, and the \*\*\*\* 18 \*\*\*\*(ed) by the blade case 3 is inserted in in this guide hole 17a.

[0016] The conclusion liver 19 which fixes the blade case 3 to the tilt location of arbitration where tilt is carried out has extended back in the condition of the end face section having \*\*\*\*ed and having been screwed in 18.

[0017] If tilt adjustment of the pivot 4 is carried out in the vertical direction by using the blade case 3 as the supporting point in the condition of having tilted the conclusion liver 19 upwards and having made it \*\*\*\*(ing) The amount of protrusions of the serrated knife 16 projected from the inferior surface of tongue of the base 1 can be adjusted, the cutting depth by the serrated knife 16 can be adjusted, the conclusion liver 19 after adjustment can be tilted below, and the blade case 3 can be concluded to a holddown member 17 with the conclusion liver 19 in a desired tilt location.

[0018] It is fixed to the motor housing 8, and the handle body 21 and the handle covering 22 are combined in the shape of matching on a screw, and the handle 20 of motor HAUJINNGU 8 projected mostly radial is formed in the shape of hollow. While grip section 20a from which a side-face configuration is supported in about C configurations by the operator is formed in a handle 20 Anchoring section 20b to which it was formed in the inner edge of grip section 20a of the toe of the handle body 21, and the side-face configuration curved in the shape of radii is connected. The adjustment hole 23 of the shape of a long hole which curved in the shape of radii over the range of about 180 degrees focusing on the axial center of motor shaft 9a of a motor 9 is installed through this anchoring section 20b.

[0019] The near handle lockscREW 24 before the handle 20 was screwed in screw-thread hole 6a of the gear housing 6 \*\*\*\*(ed) by through hole of adjustment hole [ of the handle body 20 ] 23, and 8d of upper protruding pieces of motor housing 8 8e, After the adjustment hole 23 \*\*\*\* and being

screwed in 8f of screw-thread holes of the motor housing 8, it is concluded by the motor housing 8 and the gear housing 6 by the near handle lockscrew 24. The handle 20 is being fixed to the motor housing 8 possible [ the rotation displacement around motor shaft 9a of a motor 9 ], and possible [ release ]. If both the handle lockscrew 24 is loosened, it can change into the include angle which is made to carry out the rotation variation rate of the handle 20 to the surroundings of motor shaft 8a, and is easy to grasp the include angle of the handle 20 to the base 1.

[0020] The switch 25 which is operated near the center section of grip section 20a of a handle 20 by the hand which grasped the handle 20, and is made to start and suspend a motor 9 is attached.

[0021] Then, an operation and effectiveness with the above-mentioned configuration of an example are explained. the adjustment hole 23 with which it curved in the shape of radii at anchoring section 20b of the handle 20 concluded possible [ release ] considering the axial center of motor shaft 9a of a motor 9 as a core, and the handle lockscrew 24 was \*\*\*\*(ed) by the handle lockscrew 24 in this example at the motor housing 8 with which the motor 9 was contained inside -- installing -- rotation of the handle 20 around motor shaft 9a -- the variation rate is made possible.

[0022] For this reason, according to working conditions, such as an activity location and an operator's posture, the rotation variation rate of the handle 20 can be carried out, and an operator's user-friendliness can carry out turning of the sense of a handle 20 to the best sense. therefore, the force of \*\*\*\*(ing) the portable circular saw M in the cutting direction even if it can work by making into an always natural gestalt the gestalt of the hand which grasps a handle 20 and working conditions differ -- a handle 20 -- receiving -- always -- effective -- adding -- cutting -- exact-izing -- and it can streamline. Moreover, even when the relative position of the base 1 and the motor housing 8 changes with adjustments of the cutting depth and the include angle of the handle 20 to the base 1 changes, the sense of a handle 20 can be corrected.

[0023] In addition, it may replace with \*\*\*\* as a means to fix a handle 20, and the fixed means by the lever may be adopted.

[0024] Next, if the 2nd example of this invention shown in drawing 6 and drawing 7 is explained, many tooling holes 26 which were opened for free passage by the adjustment hole 23 in this example at anchoring section 20bA of handle 20A, and were arranged in the shape of radii to the longitudinal direction of the adjustment hole 23 will be cut. The outside where the stopper 27 which proximal is carried out to the through hole 8eA bottom, engages with protruding piece 8dA alternatively of the tooling holes 26 to one on a before [ motor housing 8A ] side on the other hand, and carries out turning of the sense of handle 20A nonsequentially protrudes is constituted like the 1st example.

[0025] In this example, the handle lockscrew 24 is loosened, a stopper 27 is extricated from the inside of tooling holes 26, and when a stopper 27 is made to engage with the tooling holes 26 of the location where the sense of handle 20A becomes the optimal and the handle lockscrew 24 is concluded, the sense of handle 20A is fixed.

[0026] Therefore, since handle 20A is fixable to a duplex in this example with the handle lockscrew 24 and a stopper 27, during an activity, handle 20A can carry out rotation displacement carelessly, or can cancel the fault which carries out a location gap.

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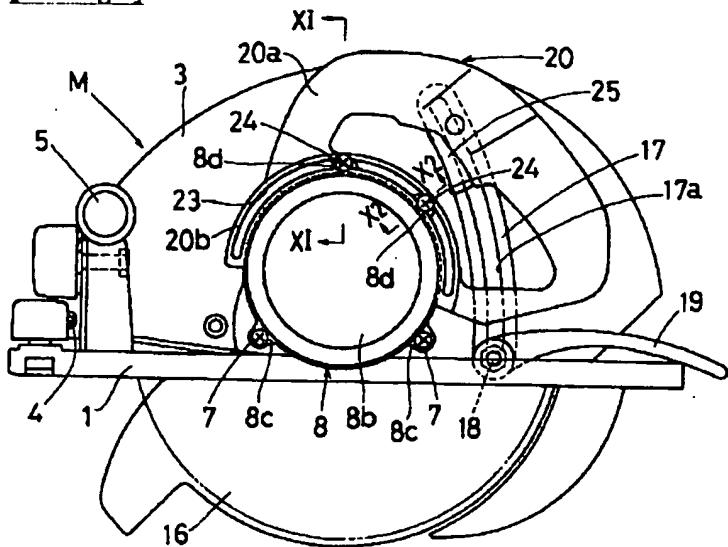
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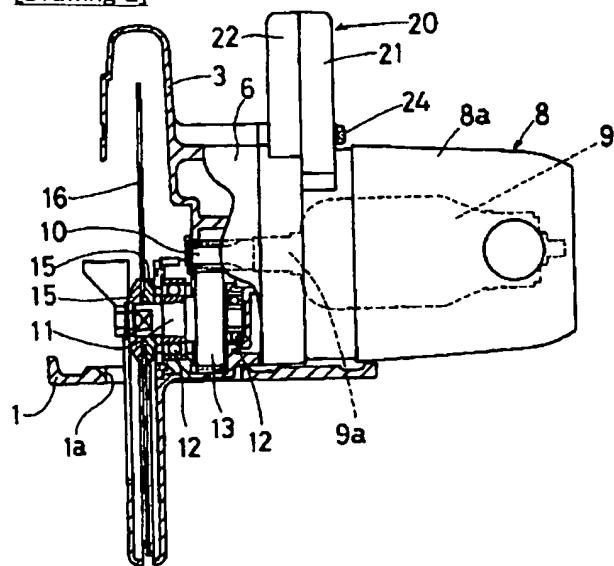
DRAWINGS

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[Drawing 1]

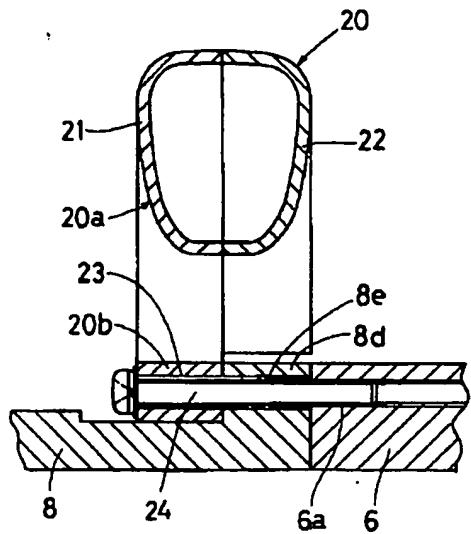


[Drawing 2]

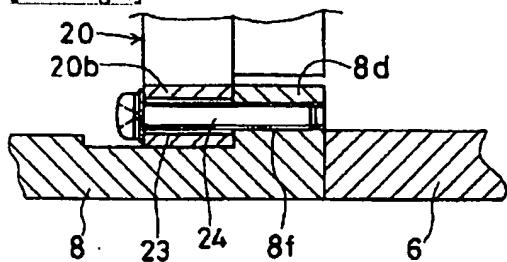


[Drawing 3]

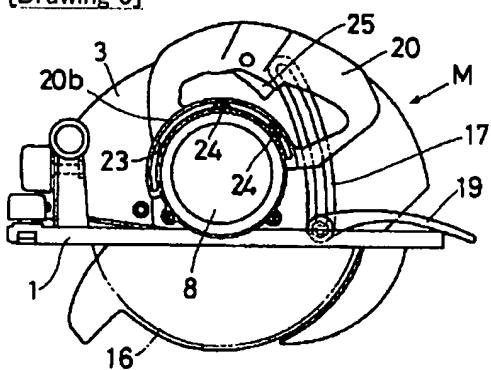
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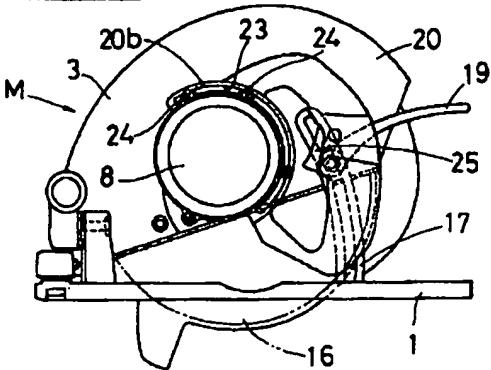
[Drawing 4]



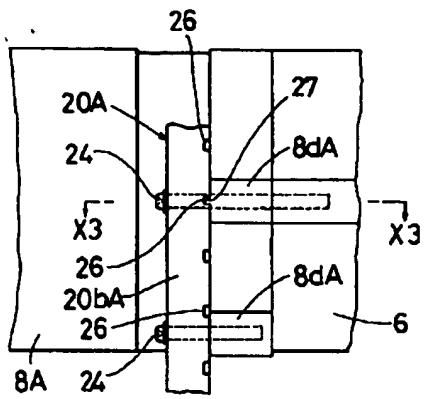
[Drawing 5]



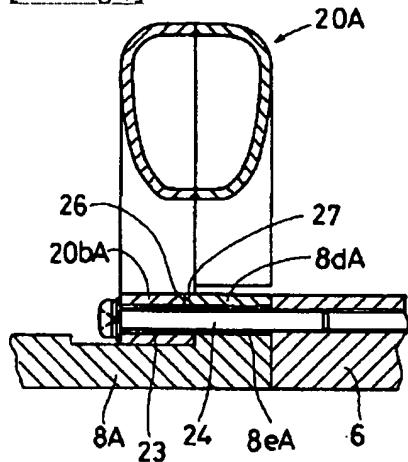
[Drawing 6]



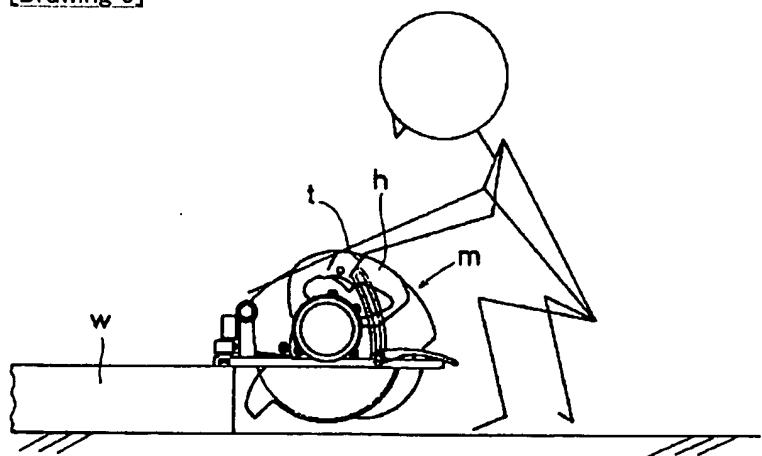
[Drawing 7]



[Drawing 8]



[Drawing 9]



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